

Title (en)  
Protein production process

Title (de)  
Verfahren zur Protein-Herstellung

Title (fr)  
Procédé de préparation de protéines

Publication  
**EP 0911416 A3 20000119 (EN)**

Application  
**EP 98118241 A 19980925**

Priority  
• EP 98118241 A 19980925  
• EP 97117021 A 19971001

Abstract (en)  
[origin: US6204012B1] A method for producing a protein by culturing a cell capable of expressing the protein and which contains a methylotrophic yeast promoter for an enzyme of the methanol metabolic pathway controlling expression of the protein, in a fermentative batch process comprising a batch phase and a feeding phase, under conditions such that dissolved oxygen is continually present in the culture medium throughout the process, and about 1% to about 100% of the carbon source during the feeding phase is a sugar or sugar polymer, which sugar or sugar polymer is provided in such an amount that the sugar or sugar polymer is continually depleted by the cell and therefore is substantially undetectable in the culture medium; and isolating the protein on completion of the feeding phase.

IPC 1-7  
**C12P 21/02**; **C12N 9/00**; **C12N 9/16**

IPC 8 full level  
**C12N 15/09** (2006.01); **C12N 9/00** (2006.01); **C12N 9/16** (2006.01); **C12P 21/00** (2006.01); **C12P 21/02** (2006.01); **C12R 1/78** (2006.01)

CPC (source: EP KR US)  
**C12N 1/00** (2013.01 - KR); **C12N 9/00** (2013.01 - EP US); **C12N 9/16** (2013.01 - EP US); **C12P 21/02** (2013.01 - EP US);  
**C12N 15/63** (2013.01 - KR); **C12P 21/00** (2013.01 - KR)

Citation (search report)  
• [X] WO 9003431 A1 19900405 - SALK INST BIOTECH IND [US]  
• [X] EP 0533492 A2 19930324 - AMGEN INC [US]  
• [A] FIESCHKO, J.C. ET AL.: "Controlled expression and purification of human immune interferon from high-cell-density fermentations of *Saccharomyces cerevisiae*.", BIOTECHNOLOGY AND BIOENGINEERING, vol. 29, 1987, pages 1113 - 21, XP002122841  
• [T] MAYER, A.F. ET AL.: "An expression system matures: a highly efficient and cost-effective process for phytase production by recombinant strains of *Hansenula polymorpha*.", BIOTECHNOLOGY AND BIOENGINEERING, vol. 63, no. 3, 5 May 1999 (1999-05-05), pages 373 - 81, XP000853785

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Designated contracting state (EPC)  
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

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**US 6204012 B1 20010320**; AU 748187 B2 20020530; AU 8715798 A 19990422; BR 9803807 A 20000328; BR 9803807 B1 20101103; CA 2249061 A1 19990401; CA 2249061 C 20090224; CN 1215175 C 20050817; CN 1218112 A 19990602; DE 69834533 D1 20060622; DE 69834533 T2 20061012; DK 0911416 T3 20060814; EP 0911416 A2 19990428; EP 0911416 A3 20000119; EP 0911416 B1 20060517; EP 1659173 A1 20060524; ES 2264181 T3 20061216; IN 188151 B 20020824; JP 4162774 B2 20081008; JP H11169173 A 19990629; KR 100572426 B1 20060621; KR 19990036734 A 19990525

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**US 16305298 A 19980929**; AU 8715798 A 19980930; BR 9803807 A 19980930; CA 2249061 A 19980929; CN 98118992 A 19980930; DE 69834533 T 19980925; DK 98118241 T 19980925; EP 06001709 A 19980925; EP 98118241 A 19980925; ES 98118241 T 19980925; IN 2187MA1998 A 19980929; JP 27410498 A 19980929; KR 19980041127 A 19980930